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**PRELIMINARY REVIEW OF DATA
AND RISK ASSESSMENT ISSUES FOR THE
HUNTERSTOWN ROAD SITE**

Prepared for:

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1.0 INTRODUCTION

This report presents a preliminary review of data and risk related issues for the Hunterstown Road Site in Straban Township, Adams County, Pennsylvania. This review is intended to provide a summary of existing sample data as well as a preliminary scoping of risk related issues associated with the site. The sampling data, including some of the enclosed figures and tables, were obtained from the Remedial Investigation/Feasibility Study (RI/FS) Phase I Report, the Work Plan and Sampling and Analysis Plan for the Phase II investigation prepared by Paul C. Rizzo Associates, Inc. on behalf of Westinghouse Electric Corporation (Westinghouse). Therefore, some table and figure numbers correspond to numbers used in these reports.

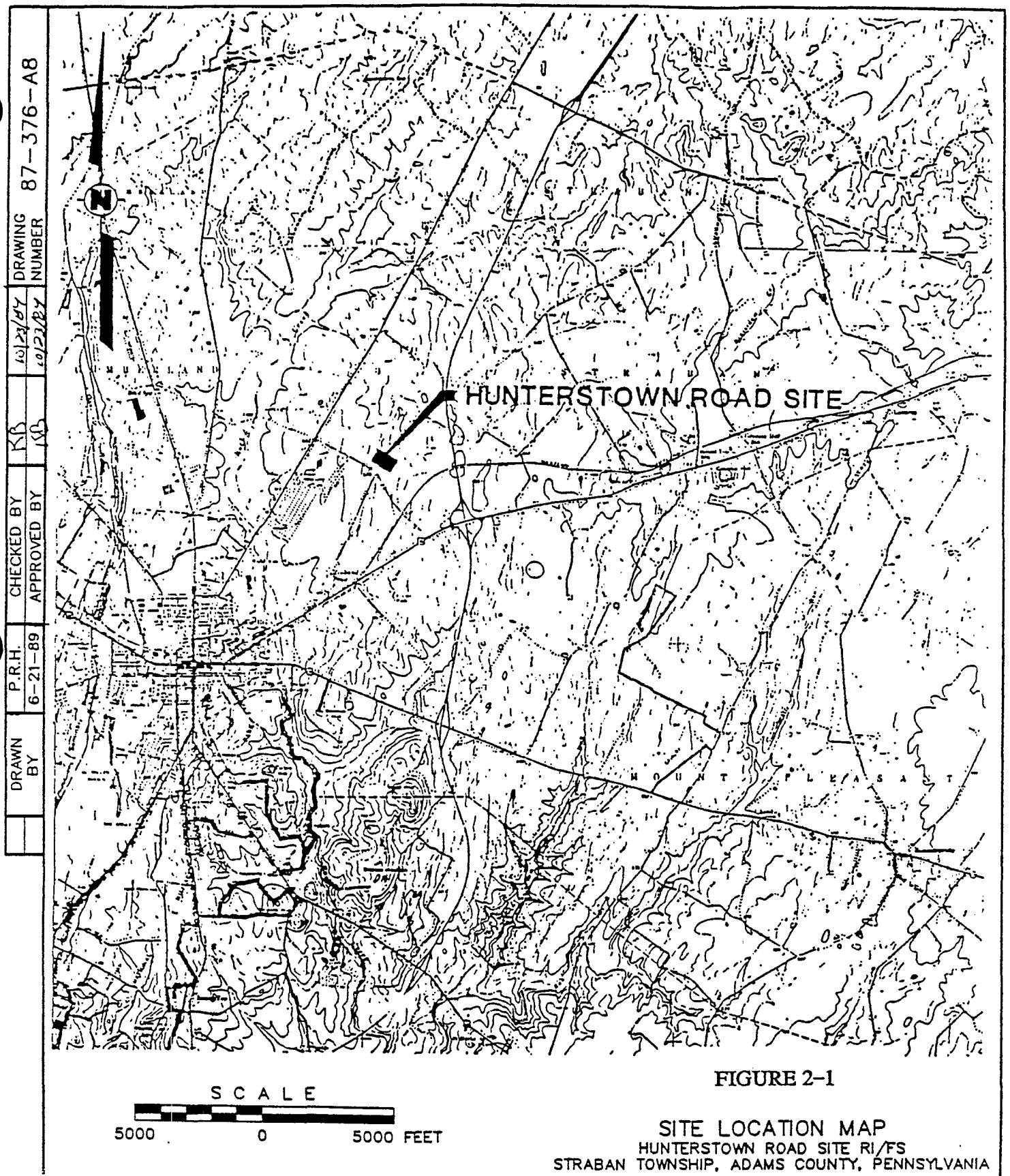
The review presented in this report is provided in three sections. Section 2 presents an overview of the operations at the site and a historical review of actions taken at the site. Section 3 provides a review of existing data (and proposed sampling for Phase II) at the site. Finally, Section 4 provides a review of the risk assessment issues associated with the site.

2.0 SITE OVERVIEW

The Hunterstown Road site is located approximately 1.5 miles northeast of the city of Gettysburg, in Straban Township, Adams County, Pennsylvania. The site setting relative to Gettysburg is provided in Figure 2-1. The site is located in a semi-rural area that has some residential development interspersed with farmlands. A site map is provided in Figure 2-2. The site is approximately 22 acres in size and occupies two portions of land located both east and west of Hunterstown Road.

The Hunterstown Road Site is the location of a former waste disposal site owned and used by Mr. Fred Shealer. Mr. Shealer transported wastes from various sources and placed them in specific locations at the property. These locations are designated: drum burial area 1, drum burial area 2, north cornfield, south cornfield, lagoon area, borrow area, and a stressed vegetation area. These wastes include drummed wastes generated by the Westinghouse Elevator Plant as well as asbestos insulation materials, construction debris materials and rubble from other locations and facilities. A description of these areas and the waste disposal practices used in these areas follows. These areas are outlined in Figure 2-2.

- **Drum Burial Area 1:** This area is located just east of West Stream and has a length of 440 feet and width of 90 feet. Drums of paint sludges and solvents, insulation board containing asbestos and construction debris were placed in a shallow depression about 4-5 feet deep.
- **Drum Burial Area 2:** This area is located just north of an access road and immediately west of Middle Stream and has a length of 180 feet and width of 50 feet. Similar to the placement of wastes in Drum Burial Area 1, drums of paint sludges and solvents, insulation board containing asbestos and construction debris were placed in shallow depressions about 4-5 feet deep.
- **Cornfields:** There are two cornfields: the north cornfield is triangular in shape and is 500 feet wide at base and 800 feet in length; and the south cornfield that is approximately 400 feet by 400 feet. The cornfields are locations where tank truck loads of liquid wastes (i.e., white clay sludges and domestic septic tank sludges) were disposed.
- **Lagoon Area:** The lagoon area is a waste disposal pit, located southeast of the cornfields, where paint sludges and colored pigmented clays were placed into shallow depressions. This area is currently enclosed with a chain-link fence and has dimensions of 150 feet by 100 feet.
- **Borrow Area:** The borrow area is located south of the cornfields and is where drums of waste (e.g., paint sludges and spent solvents) and bundles of asbestos insulation were disposed of on the ground surface. The borrow area has



SITE LOCATION MAP
HUNTERSTOWN ROAD SITE RI/FS
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA

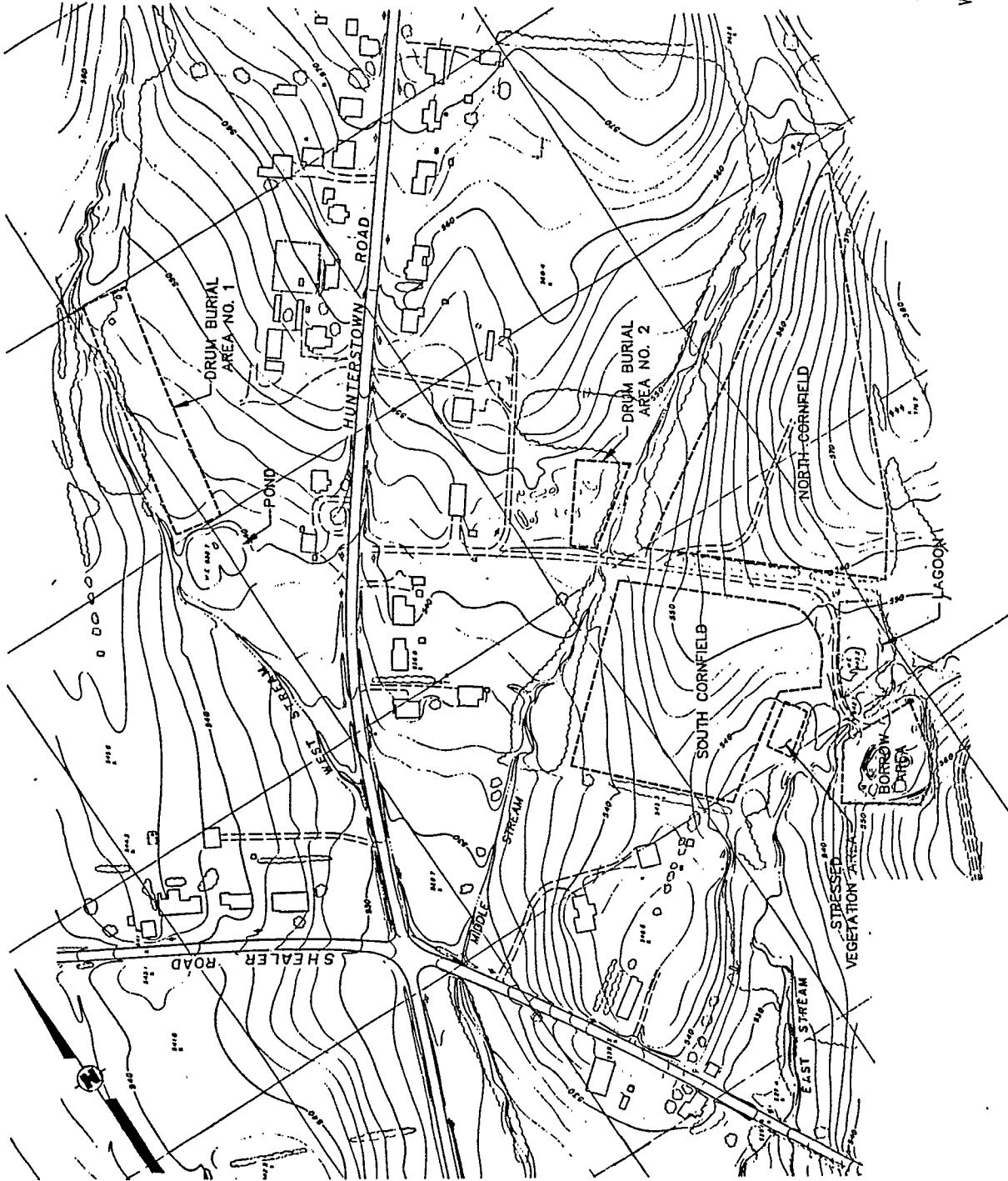


FIGURE 2-2
SITE PLAN
HUNTERSTOWN ROAD SITE, RIVES,
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA
PREPARED FOR
WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

dimensions of approximately 175 feet by 175 feet.

- **Stressed Vegetation Area:** This area is located just southwest of the lagoon area and is the location where tank truck loads of pigmented clays were placed into shallow depressions left after top soil was removed. This area is approximately 50 feet by 100 feet.

The presence of compounds-of-interest (COI) in site media at the Hunterstown Road Site was discovered simultaneously with the discovery of COI at the Shrivvers Corners Site, following an interview with Mr. Fred Shealer regarding waste activities at the Culp property (Shrivvers Corner Site).

Four interim remedial activities have been undertaken at the Hunterstown Road Site. These remedial activities include:

- Removal of all sludges and liquid materials from the lagoon and the provision of potable water to homes near the site in March, 1984 and removal of drums from the borrow area and lagoon and removal of the lagoon embankment and contents in April, 1984;
- Removal of two asbestos piles from the borrow area in 1986;
- Implementation of a series of measures to control storm water run-on and run-off and to restrict access at the site were undertaken in April and May of 1987; and
- Excavation of buried drums and waste materials from the two drum areas and disposal of these materials at an off-site RCRA waste facility from December 1988 to May 1989. The drum burial areas were drained and backfilled in 1990.

These interim remedial actions were implemented to remove the source materials from the different waste disposal areas and to restrict site access and off-site migration of COI.

3.0 REVIEW OF SAMPLING DATA

This section presents an overview of existing and proposed sampling data for the Hunterstown Road site. This section is presented in two portions. The first part provides an overview of sampling efforts from historical investigations, including sampling efforts from the Phase I investigation, and the proposed sampling efforts for the Phase II investigation. This overview is presented by media at the site. The second part presents a review of the existing analytical data for the various media at the site.

3.1 Overview of Sampling Efforts

A number investigations have occurred at the site. These investigations will be classified into two categories for subsequent discussion: the historical investigations or all sampling activities done prior to the implementation of the Remedial Investigation/Feasibility Study (RI/FS), and the Phase I and II RI/FS investigations. The historical sampling efforts include the initial investigations by the PADER in 1983 and 1984, and those done by NUS (for EPA), OH Materials, Weston (for EPA), and REMCOR. Sampling of soils, surface water, sediments, groundwater, and waste materials was conducted at the site. Field sampling during the Phase I RI was implemented by Paul C. Rizzo Associates, Inc. and began after approval of the Work Plan in December, 1988. Phase II sampling was initiated in the fall, 1990 following approval of the Work Plan and Sampling and Analysis Plan. However, a summary of the Phase II data has not been completed and will not be presented within this preliminary report.

The analytical data from the Phase I RI and historical investigations are provided in Attachment 1. Chemicals detected in various media at the site include volatile aromatics, semi-volatile aromatics, phenolics, metals, asbestos, and some pesticides. The media affected at the site include surface and subsurface soils, groundwater, surface water, and sediments. In addition, chemical analysis of off-site residential well samples indicates the presence of volatile aromatics.

The on-site areas of potential concern for the human health evaluation at the site include the cornfields, drum burial areas, lagoon area, borrow area, and stressed vegetation area. The off-site areas of potential concern are the near-site residences and the stream areas. These areas are identified in Figure 2-2. The media of concern in these areas include soils (surface and subsurface soils), groundwater, surface water and sediments. Further discussion of sampling of these media is provided below.

Soils: From a risk assessment standpoint, soils from 0 - 12 inches in depth are considered surface soils (i.e., soils that are potentially available for direct contact exposures). Soils below 12 inches are considered subsurface soils (i.e., soils that could be contacted during construction/excavation related activities). Therefore, further discussion of surface soils will include soil in the upper 12 inches while reference to subsurface soils include for those soils greater than 12 inches in depth.

During previous investigations (prior to the Phase I investigation), ten surface soil samples were taken at the site. These include six from the lagoon area, one from the south cornfield area, two from the stressed vegetation area, and one from drum burial area no. 2. These soils samples were submitted for chemical analysis for acid extractable phenolics, base neutrals, volatile aromatics, and metals. Additional surface soil samples were obtained during the Phase I investigation for these areas and include:

- **Borrow Area** - 1 composite soil sample;
- **Lagoon Area** - 1 composite soil sample;
- **Drum Burial Areas** - Numerous samples were taken from the drum burial areas before and after the removal action was taken;
- **North and South Cornfields** - 6 soil samples; and
- **Stressed Vegetation Area** - 5 grab samples.

The locations from which these surface soil samples were collected are summarized in Figure 2-4 of the Phase II Work Plan (Rizzo, 1990a). Analytical testing during the Phase I investigation included the Target Compound List of parameters (volatiles aromatics, semi-volatiles, pesticides and PCBs, and inorganics - metals and cyanide).

Additional surface and subsurface soil sampling were detailed in the Sampling and Analysis Plan (Rizzo, 1990b) for the Phase II investigation at the site. A summary of the surface soil sampling conducted during the recent Phase II investigation includes:

- **Borrow Area** - 7 additional surface soil samples were collected from a depth of six inches;
- **Lagoon Area** - Additional soil sampling from this area were limited to the soil-bedrock interface. No additional surface soil sampling is anticipated;
- **Drum Burial Areas** - Soil samples were taken at a depth of one-half the distance to bedrock from the soil surface and at the soil-bedrock. No additional surface soil sampling is anticipated;
- **North and South Cornfields** - No additional surface soil samples were obtained; and
- **Stressed Vegetation Area** - 5 surface soil samples were collected from within this area and 16 samples from the area immediately outside this area (i.e., from 1 to 2 feet outside the perimeter).

A summary of the subsurface soil sampling detailed in the Sampling and Analysis Plan for the Phase II investigation includes:

- **Borrow Area** - Soil samples were collected from a test pit at depths of three and six feet in the vicinity of the soil pile;
- **Lagoon Area** - 10 subsurface soil samples were taken at the soil-bedrock interface;
- **Drum Burial Areas** - Soil samples were taken at a depth of one-half the

distance to bedrock from the soil surface and at the soil-bedrock at eight locations at drum burial area 1 and four samples from area 2. In addition, 1 subsurface soil sample was taken from the soil-bedrock interface;

North and South Cornfields - 16 additional subsurface soil samples were taken from sampling locations in the cornfields with samples taken at one foot intervals at depths from 12 to 48 inches; and

Stressed Vegetation Area - Subsurface soil samples were taken from 5 different locations from within the Stressed Vegetation Area. Samples were taken at one foot intervals to a depth of two feet below visible contamination.

Analytical testing for the Phase II investigation included selected metals, volatile aromatics and semi-volatiles. The compounds tested for by media and location for the Phase II investigation are presented in Table SAP-1 of the Sampling and Analysis Plan (Rizzo, 1990b).

Groundwater: Groundwater monitoring wells were placed in 10 locations (one shallow and one deep) and sampled during the Phase I investigation. The location of these wells is presented in Figure 4-1 of the Sampling and Analysis Plan (Rizzo, 1990b). Analytical testing of groundwater samples included the target compound list volatiles, semi-volatiles, pesticides and PCBs, and inorganics. Sixteen new wells were installed during the Phase II investigation at other locations (Figure 4-1 of Sampling and Analysis Plan) to further characterize potential COI in groundwater at the site. Residential groundwater wells in the vicinity of the site have also been sampled prior to the Phase I investigation. The results of the residential well sampling are provided in Attachment 1. Additional samples were proposed for these residential wells in the Phase II investigation.

Surface Water and Sediment Samples: Surface water bodies near the site include the West, Middle and East streams. These streams are intermittent tributaries of Rock Creek. The location of these streams is provided in Figure 2-2. Surface water samples were obtained from 22 locations during previous investigations (prior to Phase I) from these streams. At this time, sediments samples were taken from 11 of these locations. Analytical testing of these samples included volatile aromatics, base neutrals, acid extractables, metals and cyanide. Analytical results from these samples are provided in Table 2-15 of the Work Plan (Rizzo, 1990a). In addition, four surface water and six sediment samples were obtained during the Phase I investigation. The location of these samples are provided in Figure 2-5 of the Work Plan.

Data collection for surface water and sediment sampling in the Phase II investigation included samples to be submitted for chemical analysis and for bioassessment of the receiving streams at the site. Sampling for chemical analysis included 17 surface water locations and 22 sediment locations along these streams. These locations were identified in Figure 4-6 of the Sampling and Analysis Plan (Rizzo, 1990b). Samples were obtained from upstream locations on each tributary and submitted for chemical analysis to determine background levels. For the bioassessment testing, sampling involved a sediment chronic

toxicity bioassay of a sample from a downstream location on the receiving stream from the site.

3.2 Analytical Data Results

Table 3-1 presents a summary of the Phase I RI data for the Hunterstown Road site. Data for only the Phase I is presented since the historical data was obtained prior to implementation of the interim remedial actions and do not represent current site conditions. This table presents only results for detected compounds in various media. The concentrations presented in Table 3-1 are the maximum detected concentration for each medium at each location. Attachment 1 provides the analytical data for the site. The compounds detected at the site include some of the TCL volatiles, semi-volatiles and metals. Media with detectable concentrations of compounds include on-site surface soils, on-site groundwater, off-site groundwater, surface water, and sediments.

The data presented in Table 3-1 and Attachment 1 was provided merely for summary purposes only. The final risk assessment report will incorporate a formal data evaluation and validation summary according to current EPA guidance (EPA, 1989).

3.3 Summary of Sampling Data

It appears that sufficient sampling data from site media is available to perform the risk assessment for the Hunterstown Road site following the Phase II investigation.

TABLE 3-1
SUMMARY OF PHASE I DATA FOR THE HUNTERSTOWN ROAD SITE (a)

Potential Compounds of Interest	Quantitation Limits		Borrow Area	Lagoon Area	North Cornfield	South Cornfield	Stressed Vegetation Area	Drum Area 1	Drum Area 2	Surface Water	Sediments	Groundwater	Residential Well Data (c)	Lot Number
	Water (mg/L)	Soil (b) (mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/L)	(mg/Kg)	(mg/L)	(mg/L)	
Aluminum	0.2	20	22800	15300	19800	21300	18100	27600	39100	1.5	21300	6.8		
Antimony	0.06	6					92							
Arsenic	0.01	1			2		8						14	
Barium	0.2	20	100	91	950	560	1100	185	297				110	
Beryllium	0.0035	0.5	1.2	0.9	0.7	0.8	2.3	2.11	2.06				0.2	
Cadmium	0.1	10				1.4							1.3	
Calcium	5	500	2720	2140	2200	6460	3140	3660	4890	25.7	2700	94.4		
Chromium	0.01	1	47	72	62	313	10000	33.5	40				110	
Cobalt	0.05	5	22	16	22	32	23	31.4	24.5				30	
Copper	0.025	2.5	70	60	73	702	7180	8.7	13.6				160	
Iron	0.1	10	17000	30200	19100	25800	42600	50800	28900	0.79			53000	
Lead	0.0035	0.5	336	118	246	1770	54300	13.2	15.8	0.01	704		1.6	
Magnesium	5	500	8090	3120	2360	3180	3240	17800	15400	9.24	5270	30.6		
Manganese	0.015	1.5	692	390	972	1980	3420	933	1040	0.12	1900	0.1		
Mercury	0.0002	0.02			0.35	0.51	1.5						0.0002	
Nickel	0.04	4	24	13	22	21	15	48.1	41.9				19	
Potassium	5	500	1020	847	1380	1000	1410	7150	6230	5.1	1100	18.9		
Selenium	0.005	0.5				0.76								
Silver	5	500					1.3							
Sodium	0.01	1	69	140	150	240	334	372	555	14.4	140	20.2		
Thallium	0.04	4					0.76							
Titanium	0.05	5	35	46	38	48	74	81.8	58.1				66	
Zinc	0.02	2	129	56	200	585	1030	111	111	0.08	261	0.07		
Asbestos														
Cyanide	0.01	0.125				0.07			2				0.22	
DDT	0.0001	0.016				0.029			670					
DDD	0.0001	0.016							229					

Note: a - Reported values are the maximum reported concentrations from the Phase I RI report.

b - Soil quantitation limits are based on wet weight. Dry weight limits will be higher.

c - Results for residential well concentrations based on sampling done in 1984 and 1985.

TABLE 3-1
SUMMARY OF PHASE I DATA FOR THE HUNTERSTOWN ROAD SITE (a)

Potential Compounds of Interest	Quantitation Limits						Stressed						Residential		
	Water (mg/L)	Soil (b) (mg/Kg)	Lagoon Area (mg/Kg)	North Area (mg/Kg)	Comfield (mg/Kg)	South Vegetation (mg/Kg)	Area 1 (mg/Kg)	Area 2 (mg/Kg)	Drum (mg/Kg)	Water (mg/L)	Surface Sediments (mg/Kg)	Groundwater (mg/L)	Well Data (c) (mg/L)	Lot Number	
Acetone	0.01	0.01		0.024	0.012	0.053			27	0.94			0.046		
2-Butanone	0.01	0.01							1.3	0.5					
4-Methyl-2-Pentanone	0.01	0.01							0.093	0.062					
Benzene	0.005	0.005													
Toluene	0.005	0.005					0.014	0.009	11				0.06		
Ethylbenzene	0.005	0.005							46						
Total Xylenes	0.005	0.005							410	0.09					
Methylene Chloride	0.005	0.005	0.02	0.02	0.012	0.02	0.036	0.034		0.008	0.018		0.12		
Vinyl Chloride	0.01	0.01													
Chloroethane	0.01	0.01											0.4		
1,1-Dichloroethane	0.005	0.005					0.033			0.011			3.3	0.063	
1,2-Dichloroethane	0.005	0.005												35	
1,1,1-Trichloroethane	0.005	0.005					0.0073								
1,1,2-Trichloroethane	0.005	0.005					0.509	0.14	0.037				1.2	0.5	
1,1,1,2-Tetrachloroethane	0.005	0.005						0.052	0.0074						
1,1-Dichloroethene	0.005	0.005											0.26	0.095	
1,2-Dichloroethene, trans	0.005	0.005					0.048	0.063	0.018	0.05			18	>0.15	
Trichloroethene	0.005	0.005					0.011	0.093	0.94	0.086	0.074	0.081	96	0.5	
Tetrachloroethene	0.005	0.005					0.006	0.129	15				0.06	0.0016	
1,4-Dichlorobenzene	0.01	0.33												39 E	
2,4-Dinitrotoluene	0.01	0.33													
2,6-Dinitrotoluene	0.01	0.33													
Trichlorofluoromethane															
Benzoic Acid	0.05	1.6													
4-Methylphenol	0.01	0.33													
Phenol	0.01	0.33													
Bis(2-ethylhexyl)phthalate	0.01	0.33							0.42				0.07		
Butyl Benzyl Phthalate	0.01	0.33											3.3		
Di-n-butyl phthalate	0.01	0.33											2.02		
Naphthalene	0.01	0.33											0.002		
Aniline	0.01	0.33													
4-Chloroaniline	0.01	0.33											0.001	0.0008	
Trichlorotrifluoroethane														39 E	

4.0 REVIEW OF RISK ASSESSMENT ISSUES

As a part of the RI/FS, a comprehensive quantitative risk assessment is required at the Hunterstown Road site to characterize potential on-site and off-site human health risks and ecological effects.

4.1 Elements of the Risk Assessment

The risk assessment will be performed in two parts; a human health effects evaluation and an ecological evaluation. The elements of the human health effects evaluation include:

- identification of COI;
- human health exposure assessment;
- human health toxicity assessment; and
- quantification of potential human health effects.

These elements conform with current EPA guidance for conducting a human health effects evaluation (EPA, 1989).

The determination of COI is based on the data validation and evaluation procedure outlined in the EPA guidance (EPA, 1989). The human health exposure assessment includes:

- characterization of the exposure setting;
- determination of potential source areas and migration pathways;
- identification of potential exposure locations and media;
- identification of potential receptors and exposure pathways at the site; and
- quantification of potential intakes.

The toxicity assessment consists of two steps: hazard identification and dose-response evaluation. Hazard identification is the determination of potential adverse human health effects from exposure to a chemical. Dose-response evaluation results in a numeric index of toxicity, such as a cancer slope factor for estimating potential carcinogenic effects from exposure to carcinogens, or a reference dose for estimating chronic health effects from exposure to systemic noncarcinogenic toxicants.

Risk characterization is the combining of the estimates of intake from the exposure assessment with the numerical indices of toxicity to develop a numerical estimate of risk. Risk characterization requires the consideration of uncertainty in the analysis for qualifying and interpreting the results.

The elements of the ecological effects evaluation are similar to those identified for the human health effects evaluation (identification of compounds of environmental interest,

assessment of ecological exposure, assessment of ecological toxicity, and characterization of potential ecological effects). Differences arise in the methodologies used to determine ecologically relevant receptors, exposures and risk. The ecological toxicity assessment has the same structure as the human health toxicity assessment but its content includes potential effects of the identified COI to ecological receptors rather than human receptors.

4.2 Risk Assessment Issues at the Hunterstown Road Site

The setting of the Hunterstown Road site is semi-rural, developed primarily as residential. The risk assessment will evaluate potential human health and ecological risks for two land use scenarios: risks under existing or current conditions; and risks under hypothetical future conditions. There are no existing industrial, commercial or residential uses for any of the seven areas at the Hunterstown Road site. As identified above, some interim remedial actions have been implemented to remove bulk waste materials and residual soil contamination from these locations. Drum waste materials and soil have been removed from both drum burial areas. Waste sludges and soils have been removed and a fence installed around the lagoon area. These interim remedial actions will impact the risk assessment under current conditions. Current risks will be evaluated based on concentrations of COI in residual soil and groundwater. For the future land use scenario, since the site setting is semi-rural, a likely use is the development of the land for future residences. Therefore, potential risks under the future land use scenario will include potential exposures associated with construction activities at the site and potential exposures associated with residential use of the site.

Table 4-1 presents the potential locations, media and receptors associated with the human health effects and ecological effects at the site. It should be noted that this table presents only a preliminary list. Locations, media and receptors can be added to this list or eliminated as the investigation proceeds at the site. On-site locations identified in Table 4-1 are the cornfields, borrow area, lagoon area, drum burial areas and stressed vegetation area. Off-site areas include residences near-site and at a distant off-site location. Stream areas include West, Middle and East streams.

As identified above, potential receptors include both on-site (i.e., receptors potentially exposed to COI in on-site media) and off-site receptors (i.e., receptors potentially exposed to COI in off-site media). Risks to these receptors will be evaluated for both a current and future land use scenario in conformance with the Risk Assessment Guidance (EPA, 1989). The receptors for these scenarios are discussed in more detail below.

TABLE 4-1
POTENTIAL LOCATIONS, MEDIA AND RECEPTORS
ASSOCIATED WITH THE HUNTERSTOWN ROAD SITE

Locations	Exposure Media	Receptors
Cornfield Areas	Surface Soils Subsurface Soils Groundwater	Current Visitor Children Future Construction Workers Future Residents (a) Plants (Phyto-toxicity)
Borrow Area	Surface Soils Subsurface Soils Groundwater	Current Visitor Children Future Construction Workers Future Residents (a) Plants (Phyto-toxicity)
Lagoon Area	Surface Soils Subsurface Soils Groundwater	Current Visitor Children Future Construction Workers Future Residents (a) Plants (Phyto-toxicity)
Drum Burial Area 1	Surface Soils Subsurface Soils Surface Water Groundwater	Current Visitor Children Future Construction Workers Future Residents (a) Plants (Phyto-toxicity)
Drum Burial Area 2	Surface Soils Subsurface Soils Surface Water Groundwater	Current Visitor Children Future Construction Workers Future Residents (a) Plants (Phyto-toxicity)
Stressed Vegetation Area	Surface Soils Subsurface Soils Groundwater	Current Visitor Children Future Construction Workers Future Residents (a) Plants (Phyto-toxicity)
Offsite Area	Groundwater	Off-site Resident Adults (b) Off-site Resident Children (b) Off-site Resident Young Children (b)
Stream Areas	Surface Water Sediments	Ecological Receptors

Notes:

- (a) - Residential scenarios include three different receptors: adults; children aged 2 to 18 years; and young children aged 2 to 6 years.
- (b) - Off-site residents will be evaluated for both current and future land use scenarios.

4.2.1 Current and Future Land Use Scenarios

Current Land Use Scenario: Potential current on-site receptors are children that may occasionally visit the site. These children, aged approximately 9 to 14, are assumed to occasionally visit the site to play. Current off-site receptors include near-site and distant off-site residents. Residential scenarios will evaluate potential risks to three different receptors: adults, children aged 2 to 18 years, and young children aged 2 to 6 years. Off-site residents are individuals that may be exposed to COI in off-site groundwater when used either for irrigation or as a potable water source. Off-site residents have been divided into two different receptor groups: near-site to evaluate risks to residents that live in close proximity to the site and use groundwater; and distant off-site residents that live away from the site at the extent of COI in groundwater and may use groundwater as a potable water source. Two near-site residential receptor groups will be evaluated, one receptor group near the east side of Hunterstown Road and one receptor group near the west side.

Ecological receptors include aquatic organisms inhabiting the streams on or near the site. Aquatic organisms are assumed to be potentially exposed to COI in surface water and sediments in these tributaries. The ecological assessment will also consider phyto-toxicity resulting from COI in soils to plant species in the seven on-site locations.

Future Land Use Scenario: Future on-site receptors include construction workers and on-site residents (adults, children aged 2 to 18 years, and young children aged 2 to 6 years). Construction workers would be exposed to COI in surface and subsurface soils over a relatively short exposure period (approximately 2 years). Future on-site residents would be exposed to COI in on-site surface soils and groundwater over a much longer duration (adults - 30 years, children - 16 years, and young children 5 years) than construction workers. Future off-site receptors include both near-site and distant off-site residents as described above for the current land use scenario. Future ecological receptors are assumed to be the same as those identified for the current land use scenario.

4.2.2 Potential Exposure Pathways and Intake Assumptions

Table 4-2 presents potential receptors and exposure pathways for the Hunterstown Road site. As described above, potential current on-site receptors are visitor children who occasionally visit the site and are assumed to be potentially exposed to COI via direct contact (incidental ingestion, dermal contact, and inhalation of volatiles and fugitive dusts) to on-site surface soils. The risk assessment will evaluate risks to visitor children exposed to COI in surface soils at each on-site location. Potential risks to visitor children will be evaluated separately in each area to facilitate the eventual estimation of cleanup levels. Current off-site receptors (i.e., both near-site and distant off-site residents) are assumed to contact COI in off-site groundwater. The exposure pathways for off-site residents include direct contact exposures from either potable uses (i.e., ingestion, direct contact while showering, etc.) or irrigation uses (i.e., inhalation of volatiles, dermal contact with irrigated soils, etc.). The actual exposure scenario for off-site residents will depend on the results of

TABLE 4-2
POTENTIAL RECEPTORS, EXPOSURE PATHWAYS
AND INTAKE ROUTES FOR HUNTERSTOWN ROAD SITE

Receptor	Location	Source Media	Intake Routes
<u>EXISTING LAND USE SCENARIO</u>			
Visitor Children	Cornfield Areas Borrow Area Lagoon Area Drum Burial Areas Stressed Vegetation Area	Surface Soils	Incidental Ingestion Dermal Contact Inhalation of volatiles and dusts
Offsite Residents	Nearsite Distant Offsite	Groundwater	Ingestion (a) Dermal Contact (a) Inhalation of volatiles (a)
<u>FUTURE LAND USE SCENARIO</u>			
Construction Workers	Cornfield Areas Borrow Area Lagoon Area Drum Burial Areas Stressed Vegetation Area	Surface Soils Subsurface Soils	Incidental Ingestion Dermal Contact Inhalation of volatiles and dusts Incidental Ingestion Dermal Contact Inhalation of volatiles and dusts
Future Residents	Cornfield Areas Borrow Area Lagoon Area Drum Burial Areas Stressed Vegetation Area	Surface Soils Groundwater	Incidental Ingestion Dermal Contact Inhalation of volatiles and dusts Ingestion (a) Dermal Contact (a) Inhalation of volatiles (a)
Offsite Residents	Nearsite Distant Offsite	Groundwater	Ingestion (a) Dermal Contact (a) Inhalation of volatiles (a)

Notes:

(a) - Actual intake routes for groundwater will be based on the residential well survey at site.

a well survey being conducted at the site as a part of the Phase II remedial investigation. A summary of the receptor exposure assumptions for the human health evaluation for current conditions are provided in Table 4-3.

Future on-site receptors include construction workers and residents. Construction workers are assumed to be exposed to COI via direct contact exposure to surface soils and subsurface soils. Future on-site residents are assumed to be exposed to COI in surface soils, via direct contact exposures, and to groundwater by ingestion, dermal contact while showering, and inhalation of volatiles while showering. The risk assessment will evaluate potential risks to both construction workers and future residents to COI in soils at each on-site location. Potential risks to on-site residents from exposure to groundwater will be evaluated separately for the east side and west side of Hunterstown Road. Future off-site residents are assumed to contact COI in off-site groundwater used either as a potable water source and/or for irrigation, depending on the results of the residential well survey referenced above. A summary of the receptor exposure assumptions for the human health evaluation for future conditions are provided in Table 4-4.

For the ecological assessment, potential ecological receptors considered relevant for this analysis are aquatic organisms associated with the West, Middle and East streams. Potential direct contact exposures to surface water and sediments will be evaluated for aquatic organisms. As described above, the ecological evaluation will consider potential phyto-toxicity to plants due to COI in on-site soils.

The COI for the risk assessment will include the same compounds identified in Table SAP-1 of the Sampling and Analysis Plan (Rizzo, 1990b) for the Phase II remedial investigation.

4.3 Risk Assessment Report

Upon completion of the risk assessment, a risk assessment report will be written summarizing the assumptions and conclusions of the analysis. The proposed outline for this report is provided in Table 4-5. Please note that this report outline incorporates both the human health evaluation (Sections 2 through 5) and the ecological evaluation (Section 6). Section 7 presents risk-based cleanup levels for the COI in the various site media. Section 8 provides a summary of the risk assessment.

TABLE 4-3
HUMAN HEALTH EXPOSURE ASSUMPTIONS FOR CURRENT CONDITIONS
AT THE HUNTERSTOWN ROAD SITE

Receptor	Exposure Duration	Hours per Day	Medium	Pathway	Parameter	Value	Units	Comments
ONSITE RECEPTORS								
Visitor Children	1 day/wk, 12 wk/yr, 5 yrs	4	Surface Soils	Incidental Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	50 mg/day 1.33 m ²	50% of average daily dose of 100 mg/day (a) 50th percentile for children aged 9 to 15 (b) surface area for hands, forearms, and head (b)	
					Soil Adherence Absorption Rate	18.9 % Kg/m ² 0.0145 %/hr	value determined for potting soil (c) 1.5% absorption times 15% matrix effect (d)	
				Inhalation	Inhalation Rate	0.25 1.4 m ³ /hour	average hourly outdoor inhalation rate for adults (b)	
OFFSITE RECEPTORS								
Offsite Residents (e):					Ingestion Rate Body Surface Area % Area Exposed	2 L/day 1.94 m ²	reasonable worst-case value for adults (b)	
- Adults	7 day/wk, 50 wk/yr, 30 yrs 7 day/wk, 50 wk/yr, 30 yrs	0.25	Groundwater (f)	Ingestion Dermal Contact	Absorption Rate	100 % cm/hr	50th percentile for adult males (b) entire body assumed for shower value for water (c)	
					Inhalation Rate	0.0008 0.89 m ³ /hr	based on reasonable maximum indoor exposure rate (b)	
- Children	7 day/wk, 50 wk/yr, 17 yrs 7 day/wk, 50 wk/yr, 17 yrs	0.25	Groundwater (f)	Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	1.5 L/day 1.21 m ²	assumed for children median total body surface area for child 3-18 yrs (b)	
					Absorption Rate	100 % cm hr	entire body assumed for shower value for water (c)	
				Inhalation (shower)	Inhalation Rate	0.0008 0.89 m ³ /hr	based on reasonable maximum indoor exposure rate (b)	
- Young Children	7 day/wk, 50 wk/yr, 17 yrs 7 day/wk, 50 wk/yr, 5 yrs	0.25	Groundwater (f)	Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	1.5 L/day 0.73 m ²	assumed for children median total body surface area for child 3 - 6 yrs (b)	
					Absorption Rate	100 % cm/hr	entire body assumed for bath value for water (c)	
						0.0008		

Notes:

- (a) U.S. EPA. Interim Final Guidance for Soil Ingestion Rates. Memorandum from J. W. Porter dated January 27, 1989.
- (b) U.S. EPA. 1989. Exposure Factors Handbook. Office of Health and Environmental Assessment. EPA/600/R-89/043.
- (c) U.S. EPA. 1988. Superfund Exposure Assessment Manual. EPA/540/1-88/001.
- (d) Havley, J. 1985. Assessment of Health Risk Associated With Exposure to Contaminated Soil. Risk Analysis, 5:289-302.
- (e) Offsite residents include both nearsite residents and distant offsite residents.
- (f) Actual groundwater exposures will be based a residential well survey.

TABLE 4-4
HUMAN HEALTH EXPOSURE ASSUMPTIONS FOR THE FUTURE LAND USE CONDITIONS
AT THE HUNTERSTOWN ROAD SITE

Receptor	Exposure Duration	Hours per Day	Medium	Pathway	Parameter	Value	Units	Comments
ONSITE RECEPTORS								
Construction Workers	3 days/wk, 35 wks/yr, 2 yrs	6	Surface Soils	Incidental Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	100 mg/day 1.94 m ² 18.9 %	100 % of average daily dose of 100 mg/day (a) 50th percentile for adult (b) surface area for hands, forearms, and head (b)	
	2 day/wk, 35 wks/yr, 2 yrs	8	Subsurface Soils	Inhalation Incidental Ingestion Dermal Contact	Absorption Rate Soil Adherence Inhalation Rate Ingestion Rate Body Surface Area % Area Exposed	0.0145 Kg/m ² /hr 0.25 %/hr 2.5 m ³ /hour 100 mg/day 1.94 m ² 18.9 %	value determined for potting soil (c) 1.5 % absorption times 15 % matrix effect (d) based on reasonable maximum exposure of 20 m ³ /work-day (g) 100 % of average daily dose of 100 mg/day (a) 50th percentile for adult (b) surface area for hands, forearms, and head (b)	
				Inhalation	Absorption Rate	0.0145 Kg/m ² /hr 0.25 %/hr	value determined for potting soil (c) 1.5 % absorption times 15 % matrix effect (d) based on reasonable maximum exposure of 30 m ³ /day (h)	
Onsite Residents:								
- Adults	7 days/wk, 50 wks/yr, 30 yrs 2 days/wk, 24 wks/yr, 30 yrs	4	Surface Soils	Incidental Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	100 mg/day 1.94 m ² 18.9 %	100 % of average daily dose of 100 mg/day (a) 50th percentile for adult (b) surface area for hands, forearms, and head (b)	
	7 days/wk, 50 wks/yr, 30 yrs 7 days/wk, 50 wks/yr, 30 yrs 7 days/wk, 50 wks/yr, 30 yrs	24	Groundwater	Inhalation Ingestion Dermal Contact	Absorption Rate Inhalation Rate Ingestion Rate Body Surface Area % Area Exposed	0.0145 Kg/m ² /hr 0.25 %/hr 20 m ³ /day 2 L/day 1.94 m ² 100 %	value determined for potting soil (c) 1.5 % absorption times 15 % matrix effect (d) based on reasonable maximum exposure of 20 m ³ /day (g) reasonable worst-case value for adults (b) 50th percentile for adult males (b) entire body assumed for shower	
	7 days/wk, 50 wks/yr, 30 yrs	0.25		Inhalation (shower)	Absorption Rate	0.00038 cm/hr	value for water (c)	
- Children	7 days/wk, 50 wks/yr, 17 yrs 4 days/wk, 24 wks/yr, 17 yrs	4	Surface Soils	Incidental Ingestion Dermal Contact	Inhalation Rate Body Surface Area % Area Exposed	100 mg/day 1.21 m ² 18.9 %	100 % of average daily dose of 100 mg/day (a) 50th percentile for adult (b) surface area for hands, forearms, and head (b)	
	7 days/wk, 50 wks/yr, 17 yrs 7 days/wk, 50 wks/yr, 17 yrs 7 days/wk, 50 wks/yr, 17 yrs	24	Groundwater	Inhalation Ingestion Dermal Contact	Absorption Rate Inhalation Rate Ingestion Rate Body Surface Area % Area Exposed	0.0145 Kg/m ² /hr 0.25 %/hr 20 m ³ /day 1.5 L/day 1.21 m ² 100 %	value determined for potting soil (c) 1.5 % absorption times 15 % matrix effect (d) based on reasonable maximum exposure of 20 m ³ /day (g) assumed for children	
	7 days/wk, 50 wks/yr, 17 yrs	0.25		Inhalation (shower)	Absorption Rate	0.00038 cm hr	value for water (c)	
- Young Children	7 days/wk, 50 wks/yr, 5 yrs 4 days/wk, 24 wks/yr, 5 yrs	4	Surface Soils	Incidental Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	200 mg/day 0.73 m ² 18.9 %	100 % of average daily dose of 200 mg/day for young child (a) 50th percentile for adult (b) surface area for hands, forearms, and head (b)	
	7 days/wk, 50 wks/yr, 5 yrs 7 days/wk, 50 wks/yr, 5 yrs 7 days/wk, 50 wks/yr, 5 yrs	24	Groundwater	Inhalation Ingestion Dermal Contact	Absorption Rate Inhalation Rate Ingestion Rate Body Surface Area % Area Exposed	0.0145 Kg/m ² /hr 0.25 %/hr 20 m ³ /day 1.5 L/day 0.73 m ² 100 %	value determined for potting soil (c) 1.5 % absorption times 15 % matrix effect (d) based on reasonable maximum exposure of 20 m ³ /day (g) assumed for children	
	7 days/wk, 50 wks/yr, 5 yrs	0.25			Absorption Rate	0.00038 cm/hr	value for water (c)	

TABLE 4-4 (con't)
HUMAN HEALTH EXPOSURE ASSUMPTIONS FOR THE FUTURE LAND USE CONDITIONS
AT THE HUNTERSTOWN ROAD SITE

Receptor <u>OFFSITE RECEPTORS</u>	Exposure Duration	Hours per Day	Medium	Pathway	Parameter	Value	Units	Comments
Offsite Residents (e):								
- Adults	7 day/wk, 50 wk/yr, 30 yrs	0.25	Groundwater (f)	Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	2 L/day 1.94 m ² 100 %	m ²	reasonable worst-case value for adults (b)
	7 day/wk, 50 wk/yr, 30 yrs				Absorption Rate	0.0003 cm/hr		50th percentile for adult males (b)
				Inhalation (shower)	Inhalation Rate	0.89 m ³ /hr		entire body assumed for shower
- Children	7 day/wk, 50 wk/yr, 17 yrs	0.25	Groundwater (f)	Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	1.5 L/day 1.21 m ² 100 %	m ²	assumed for children
	7 day/wk, 50 wk/yr, 17 yrs				Absorption Rate	0.0003 cm hr		median total body surface area for child 3-18 yrs (b)
				Inhalation (shower)	Inhalation Rate	0.39 m ³ /hr		entire body assumed for shower
- Young Children	7 day/wk, 50 wk/yr, 5 yrs	0.25	Groundwater (f)	Ingestion Dermal Contact	Ingestion Rate Body Surface Area % Area Exposed	1.5 L/day 0.73 m ² 100 %	m ²	assumed for children
	7 day/wk, 50 wk/yr, 5 yrs				Absorption Rate	0.0003 cm hr		median total body surface area for child 3 - 6 yrs (b)
				Inhalation (shower)				entire body assumed for bath
								value for water (c)

Notes:

- (a) U.S. EPA. Interim Final Guidance for Soil Ingestion Rates. Memorandum from J. W. Porter dated January 27, 1989.
- (b) U.S. EPA. 1989. Exposure Factors Handbook. Office of Health and Environmental Assessment. EPA/600/R-89/043
- (c) U.S. EPA. 1988. Superfund Exposure Assessment Manual. EPA/540/1-88/001.
- (d) Hawley, J. 1985. Assessment of Health Risk Associated With Exposure to Contaminated Soil. Risk Analysis, 5:289-302.
- (e) Offsite residents include both nearsite residents and distant offsite residents.
- (f) Actual groundwater exposures will be based a residential well survey.
- (g) U.S. EPA. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03. 1991.

TABLE 4-5
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 - 8.2 Summary of Ecological Evaluation
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-

5.0 REFERENCES

- EPA, 1989. Risk Assessment Guidance for Superfund: Volume II, Human Health Evaluation Manual (Part A). Interim Final. December 1989. EPA/540/1-89/002.
- Rizzo, 1989. Remedial Investigation/Feasibility Study Phase I Report for the Hunterstown Road Site. Paul C. Rizzo Associates, August 1989.
- Rizzo, 1990a. Work Plan for the Westinghouse Plant Site. Paul C. Rizzo Associates, July 1990.
- Rizzo, 1990b. Sampling and Analysis for the Hunterstown Road Site. Paul C. Rizzo Associates, July 1990.

ATTACHMENT 1

SAMPLE DATA FOR THE
HUNTERSTOWN ROAD SITE

AR306068

HISTORICAL DATA FOR THE
HUNTERSTOWN ROAD SITE

AR306069

TABLE 2-3.
SUMMARY OF WASTE SAMPLING

Date	Location	Test	No. of Samples	No. of Detections	Compound	Range in Concentration
1/28/84	Lagoon	RCRA Organics	3 1	2 1 1	Flashpoint 1,4-dichlorobenzene 4,4 DDT di-n-butyl phthalate	57°+48°C 81,000 ppb 34,000 ppb 10,000 ppb
3/29/84	Lagoon	pH Flashpoint EP Tox Cyanide Sulfide Acid E B-N E	27 27 16 27 27 30 30	27 2 3 0 0 0 1	- - lead - - naphthalene bis-phthalate	2.8-9.58 70°+85° 5.5-95 ppm D.L. 5 ppm D.L. 10 ppm D.L. 25 ppm 1,700 ppb 290 ppb
3/29/84	Lagoon	Purgeable Organics	30	4	benzene chloroform	38-110 ppb 17-130 ppb
			30	13	1,1-DCA	150-890 ppb
			30	2	1,1-DCE	16-16,000 ppb
			30	13	ethyl benzene	110-100,000 ppb
			30	9	methyl chloride	29-230 ppb
			30	9	TCA	29->90,000 ppb
			30	16	TCE	89-410 ppb
			30	3	toluene	11-17,000 ppb
			30	12		
3/29/84	Lagoon	Pesticides	30	0	-	D.L. 10 ppb
3/29/84	Lagoon	PCBs	30	0	-	D.L. 10 ppb

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TABLE 2-3. (CONTINUED)
SUMMARY OF WASTE SAMPLING

Date	Location	Test	No. of Samples	No. of Detections	Compound	Range in Concentration
3/29/84	Lagoon	Inorganics	30	4	antimony	5.4-93 ppm
			30	7	arsenic	12-49 ppm
			30	1	beryllium	2.6 ppm
			30	3	cadmium	2.6-8.0 ppm
			30	27	chromium	8.4-4,600 ppm
			30	25	copper	2.1-9,900 ppm
			30	20	lead	5.8-25,000 ppm
			30	3	mercury	.64-.3.4 ppm
			30	17	nickel	1.1-270 ppm
			30	1	silver	62 ppm
			30	30	zinc	.68 - 79,000 ppm
			30	1	cyanide	13 ppm

5/14/86 Borrow Area Asbestos

2 2 amosite asbestos

708

Note: D.L. Detection Limit

AR306071

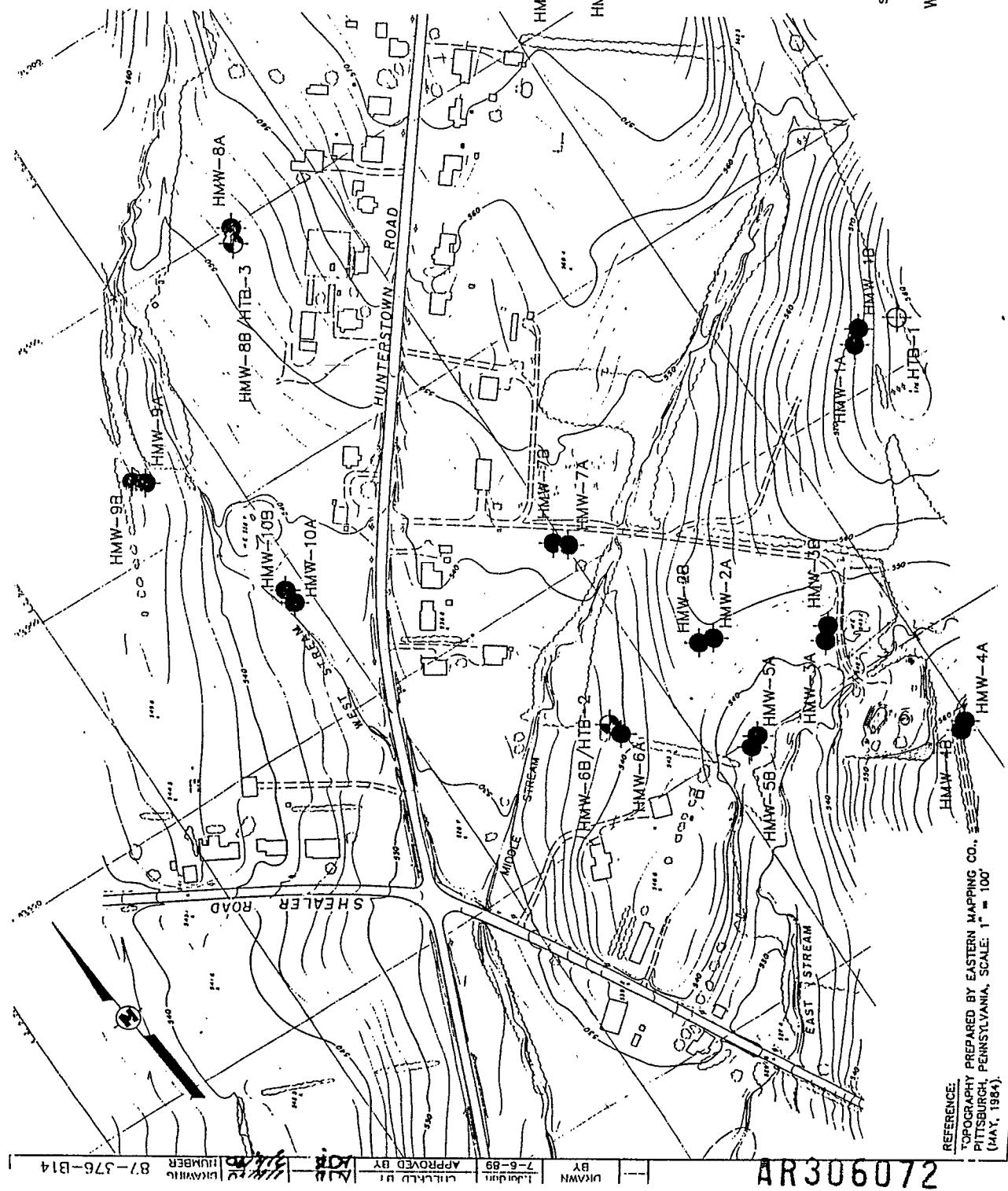


FIGURE 2-3
MONITORING WELL AND
TEST BORING LOCATIONS
HUNTERSTOWN ROAD SITE R/F/S
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA
PREPARED FOR
WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

DCQ Paul C. Rizzo Associates, Inc.
CONSULTANTS

RI DATA FOR THE
HUNTERSTOWN ROAD SITE

AR306073

TABLE 2-20

SHALLOW GROUNDWATER SAMPLES
SUMMARY OF ANALYTICAL RESULTS

PARAMETER (a)	UNITS (d)	SAMPLE DESIGNATION (c)									
		MW-1A	MW-2A	MW-3A	MW-4A	MW-5A	MW-6A	MW-7A	MW-8A	MW-9A	MW-10A
Inorganics											
Aluminum	mg/l	0.8	ND	(d)	ND	0.4	ND	ND	0.2	0.7	6.8
Barium	mg/l	0.2	ND	0.2	0.2	0.1	ND	0.2	ND	0.2	ND
Calcium	mg/l	7.80	52.7	57.7	8.21	51.4	26.2	13.9	12.4	26.8	25.7
Chromium	mg/l	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	mg/l	ND	ND	ND	ND	ND	ND	ND	0.02	0.02	0.02
Iron	mg/l	0.38	ND	ND	0.14	ND	ND	0.08	0.17	1.60	ND
Magnesium	mg/l	3.14	13.0	19.8	3.60	14.6	7.79	8.78	8.25	23.5	10.9
Manganese	mg/l	0.02	ND	0.07	0.04	0.01	ND	0.02	0.04	0.09	0.10
Mercury	mg/l	ND	ND	0.0002	ND						
Potassium	mg/l	0.8	1.2	1.5	1.2	1.6	1.8	1.3	4.4	1.6	
Sodium	mg/l	10.1	9.3	15.3	7.9	20.2	13.7	10.6	11.1	18.6	17.1
Zinc	mg/l	0.02	ND	0.04	0.06	0.04	ND	0.03	0.06	0.03	
Organics											
Methylene Chloride	ug/l	ND	ND	120	ND						
Chloroethane	ug/l	ND	ND	400	ND						
1,1-Dichloroethane	ug/l	ND	ND	3300	ND	27	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/l	ND	10	1100	ND	73	ND	91	ND	97	ND
Vinyl Chloride	ug/l	ND	ND	700	ND						
1,1-Dichloroethene	ug/l	ND	ND	290	ND	7	ND	23	ND	45	ND
Trans-1,2-Dichloroethene	ug/l	ND	ND	18000	ND	51	ND	6	ND	28	ND
Trichloroethene	ug/l	ND	ND	96000	ND	42	ND	17	ND	88	ND
Tetrachloroethene	ug/l	ND	ND	60	ND						
Toluene	ug/l	ND	ND	60	ND						
2,4-Dinitrotoluene	ug/l	ND	ND	80	ND						
2,6-Dinitrotoluene	ug/l	ND	ND	80	ND						
Bis(2-ethylhexyl) Phthalate	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	70	ND

AR 306074

TABLE 2-20
(Continued)

- a. Target Analyte List (TAL) and Target Compound List (TCL) compounds not listed were not present in these samples above quantitation limits.
- b. "mg/l" indicates milligrams per liter or parts per million (ppm) and "ug/l" indicates micrograms per liter or parts per billion (ppb).
- c. Samples collected May 23-25, 1989 by Rizzo Associates.
- d. "ND" indicates parameter was not detected above quantitation limits.

AR306075

TABLE 2-21
DEEP GROUNDWATER SAMPLES
SUMMARY OF ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)						SAMPLE DESIGNATION (c)					
	MW-1B	MW-2B	MW-3B	MW-4B	MW-5B	MW-6B	MW-7B	MW-8B	MW-8BD	MW-9B	MW-10B	
Inorganics												
Aluminum	mg/1	ND	(d)	ND	ND	0.1	0.1	ND	ND	ND	ND	ND
Barium	mg/1	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND
Calcium	mg/1	12.2	17.6	21.7	20.4	29.5	27.8	16.1	44.5	44.2	36.2	94.4
Iron	mg/1	ND	ND	0.10	0.07	0.07	0.06	0.05	ND	ND	ND	ND
Magnesium	mg/1	2.96	4.27	5.17	5.79	6.84	6.94	5.89	15.1	15.0	10.3	30.6
Manganese	mg/1	ND	ND	ND	0.03	ND	0.01	ND	0.03	0.03	ND	ND
Mercury	mg/1	ND	0.0002	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	mg/1	0.6	0.6	0.9	1.4	0.7	3.1	18.9	1.4	1.5	1.0	2.4
Sodium	mg/1	5.3	6.0	11.5	7.1	7.1	8.5	17.5	11.8	12.1	12.1	14.9
Zinc	mg/1	ND	ND	0.03	0.07	ND	0.03	ND	ND	0.02	0.03	0.02
Organics												
Methylene Chloride	ug/1	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	ND
1,1-Dichloroethane	ug/1	ND	ND	ND	ND	8	10	18	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/1	ND	1200	20	ND	22	130	550	ND	ND	370	ND
1,1-Dichloroethene	ug/1	ND	260	6	ND	7	10	180	ND	ND	76	ND
Trans-1,2-Dichloroethene	ug/1	ND	270	13	ND	120	52	19	ND	ND	ND	ND
Trichloroethene	ug/1	ND	14000	100	ND	180	50	240	ND	ND	930	ND
Bis(2-Ethylhexyl) Phthalate	ug/1	ND	ND	ND	30	ND	ND	ND	ND	ND	ND	ND

- a. Target Analyte List (TAL) and Target Compound List (TCL) compounds not listed were not present in these samples above quantitation limits.
- b. "mg/1" indicates milligrams per liter or parts per million (ppm) and "ug/1" indicates micrograms per liter or parts per billion (ppb).
- c. Samples collected May 23-25, 1989 by Rizzo Associates.
- d. "ND" indicates parameter was not detected above quantitation limits.

AR306076

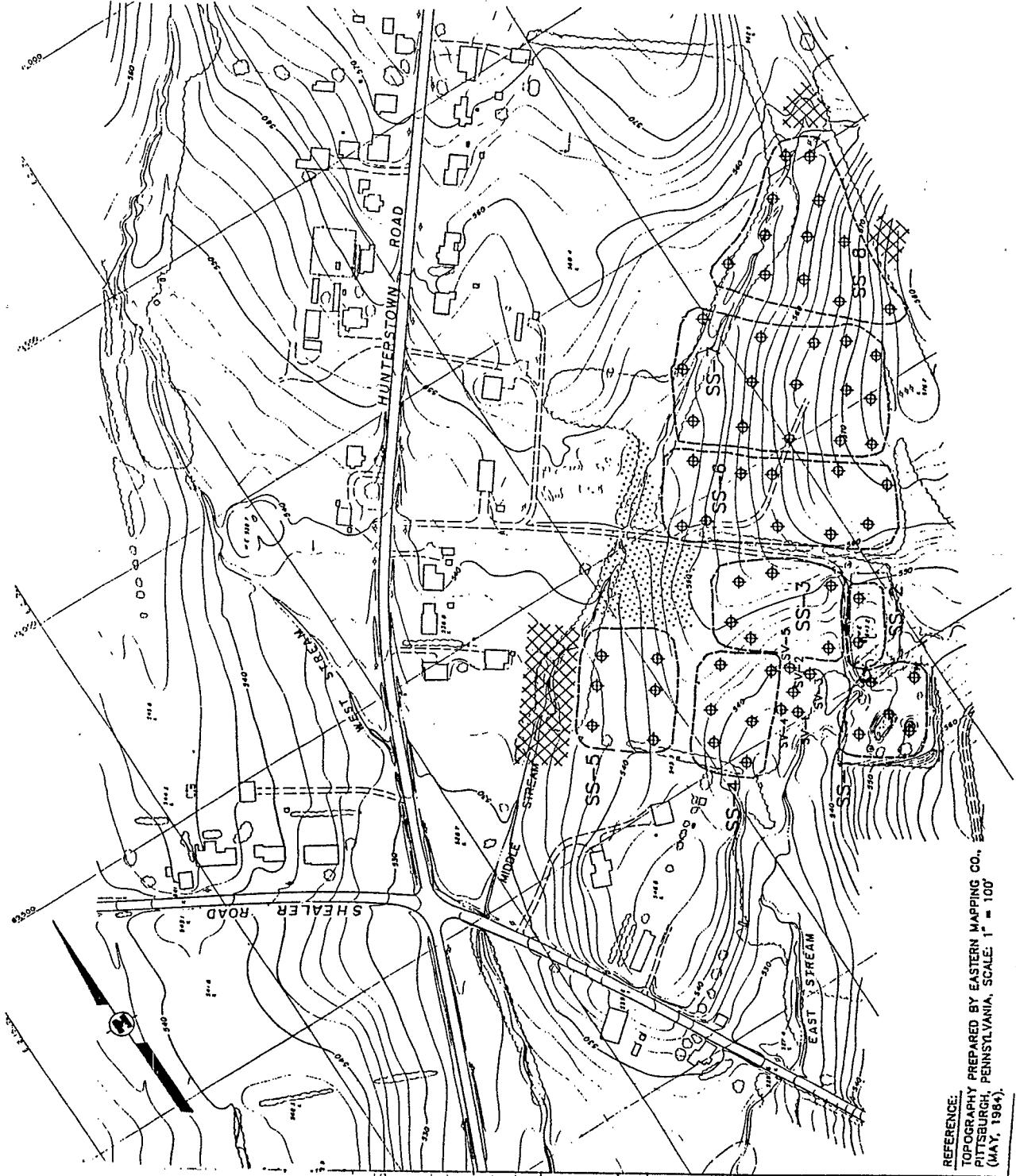


FIGURE 2-4
SOIL SAMPLE LOCATIONS
HUNTERSTOWN ROAD SITE RI/F'S
STRABAN TOWNSHIP, ADAMS COUNTY, PENNSYLVANIA
PREPARED FOR
WESTINGHOUSE ELECTRIC CORPORATION
PITTSBURGH, PENNSYLVANIA

DCR Paul C. Rizzo Associates, Inc.
CONSULTANTS

AR306077

TABLE 2-4
STRESSED VEGETATION AREA SOIL SAMPLES
SUMMARY OF ANALYTICAL RESULTS

PARAMETER ^(a)	UNITS ^(b)	SAMPLE DESIGNATION ^(c)				
		SV-1	SV-2	SV-3	SV-4	SV-5
Moisture	%	43.3	18.9	20.2	31.2	22.2
<u>TAL Inorganics</u>						
Aluminum	mg/kg	16800	18100	14300	12200	16200
Antimony	mg/kg	92	ND	ND	73	ND
Arsenic	mg/kg	ND	2	8	3	1
Barium	mg/kg	1100	140	290	1530	80
Beryllium	mg/kg	ND	1.1	2.3	ND	ND
Calcium	mg/kg	1180	2790	3140	870	2000
Chromium	mg/kg	8590	120	38	10000	30
Cobalt	mg/kg	ND	14	23	ND	ND
Copper	mg/kg	2820	889	122	7180	14
Iron	mg/kg	12500	20600	42600	9220	19700
Lead	mg/kg	54300	1820	120	24400	15
Magnesium	mg/kg	1360	3240	2640	890	2160
Manganese	mg/kg	155	766	3420	131	179
Mercury	mg/kg	1.5	0.05	ND	1.5	ND
Nickel	mg/kg	11	12	15	6	8
Potassium	mg/kg	723	1410	1180	465	1210
Sodium	mg/kg	300	74	ND	334	64
Vanadium	mg/kg	37	48	74	29	46
Zinc	mg/kg	547	312	207	1030	42
Cyanide	mg/kg	2.0	ND	0.16	1.7	ND
<u>TCL Volatiles</u>						
Acetone	ug/kg	53	25	13	29	ND
Toluene	ug/kg	ND	ND	ND	9	ND
Methylene Chloride	ug/kg	ND	33	25	36	12
1,1-Dichloroethane	ug/kg	11	ND	ND	33	ND
1,1,1-Trichloroethane	ug/kg	194	ND	ND	509	ND
Trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	48	ND
Trichloroethene	ug/kg	37	ND	ND	93	ND
Tetrachloroethene	ug/kg	129	ND	ND	16	ND
<u>TCL Pesticides</u>						
DDD	ug/kg	229	ND	ND	ND	ND
DDT	ug/kg	670	ND	ND	ND	ND

AR306078

TABLE 2-4
(Continued)

- a. Target Analyte List (TAL) and Target Compound List (TCL) compounds not listed were not present in these samples above quantitation limits.
- b. "mg/kg" indicates milligrams per kilogram or parts per million (ppm); "ug/kg" indicates micrograms per kilogram or parts per billion (ppb); results reported on dry-weight basis.
- c. Samples collected December 7, 1988 by Rizzo Associates.
- d. "ND" indicates parameter was not detected above quantitation limits.

AR306079

TABLE 2-6

SOIL SAMPLES
SUMMARY OF INORGANIC ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)	SAMPLE DESIGNATION (c)										CORNFIELD
		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-BG	CORNFIELD	
Moisture	%	13.2	23.3	20.8	22.2	17.4	19.2	17.3	18.3	17.3	22.5	23.0
TCL Inorganics												
Aluminum	mg/kg	22800	15300	12600	21300	17800	20200	16300	19800	11800	12500	12400
Arsenic	mg/kg	ND (d)	ND	2	5							
Barium	mg/kg	100	91	560	170	150	190	240	950	340	64	7030
Beryllium	mg/kg	1.2	0.9	ND	0.8	ND	ND	0.6	0.6	0.7	ND	ND
Cadmium	mg/kg	ND	ND	1.4	ND	1.2						
Calcium	mg/kg	2720	2140	6460	1900	1260	1410	1310	2200	1460	2030	11900
Chromium	mg/kg	47	72	313	36	34	45	34	36	62	22	65
Cobalt	mg/kg	22	16	11	32	11	14	15	22	18	14	169
Copper	mg/kg	70	60	702	59	27	28	71	70	73	8	188
Iron	mg/kg	17000	30200	11900	25800	24100	33200	17500	19100	12000	18600	3300
Lead	mg/kg	336	118	1770	62.0	38.5	31.1	173	246	241	28.0	6550
Magnesium	mg/kg	8090	3120	2730	3180	2950	3040	2200	2360	1700	2100	1770
Manganese	mg/kg	692	390	489	1980	734	745	580	791	972	1150	309
Mercury	mg/kg	ND	0.51	0.22	0.12	0.09	0.35	0.17	0.24	ND	0.31	
Nickel	mg/kg	24	13	21	15	13	16	13	22	12	9	294
Potassium	mg/kg	1020	847	871	1000	968	1190	1210	1380	629	645	1820
Selenium	mg/kg	ND	0.76	ND	3.5							
Silver	mg/kg	ND	1.3	ND	ND							
Sodium	mg/kg	69	140	240	77	85	110	60	150	ND	ND	2230
Vanadium	mg/kg	35	46	23	48	46	62	31	38	22	36	21
Zinc	mg/kg	129	56	585	123	77	89	133	200	123	41	2940
Cyanide	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	0.07	ND	N/A (e)

a. Target Analyte List (TAL) compounds not listed were not present in these samples above quantitation limits.

b. "mg/kg" indicates milligrams per kilogram or parts per million, (ppm); results reported on dry-weight basis.

c. Samples collected December 7, 1988 by Rizzo Associates.

d. "ND" indicates parameter was not detected in the sample above quantitation limits.

e. "N/A" indicates sample not analyzed for this parameter.

AR 306080

TABLE 2-7
SOIL SAMPLES
SUMMARY OF ORGANIC ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)	SAMPLE DESIGNATION (c)						CORNFIELD		
		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-BG
TCL Volatiles										
Acetone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	14	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/kg	20	20	20	12	16	20	12	11	ND
Trichloroethene	ug/kg	ND	ND	11	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	6	ND	ND	ND	ND	ND	ND
TCL Semivolatiles										
Bis(2-ethylhexyl) Phthalate	mg/kg	ND	ND	0.42	ND	ND	ND	ND	ND	N/A (e)
TCL Pesticides										
DDT	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	N/A

a. Target Compound List (TCL) compounds not listed were not present in these samples above quantitation limits.

b. "mg/kg" indicates milligrams per kilograms or parts per million (ppm); and "ug/kg" indicates micrograms per kilogram or parts per billion (ppb); results reported on a dry-weight basis.

c. Samples collected December 7, 1988 by Rizzo Associates.

d. "ND" indicates parameter was not detected in the sample above quantitation limits.

e. "N/A" indicates sample was not analyzed for this parameter.

AR30608

TABLE 2-8
POST-EXCAVATION COMPOSITE SOIL SAMPLES - DRUM BURIAL AREA 1
SUMMARY OF ANALYTICAL RESULTS

<u>PARAMETER</u> ^(a)	<u>UNITS</u> ^(b)	<u>SAMPLE DESIGNATION</u> ^(c)			
		1-COMP	2-COMP	3-COMP	4-COMP
<u>TCL Inorganics</u>					
Aluminum	mg/kg	24800	18800	27600	21900
Barium	mg/kg	112	133	159	185
Beryllium	mg/kg	2.11	1.57	1.83	1.97
Calcium	mg/kg	3660	2960	3460	2360
Chromium	mg/kg	33.5	25.4	31.7	30.8
Cobalt	mg/kg	22.3	31.4	26.8	27.1
Copper	mg/kg	8.7	7.2	7.3	8.6
Iron	mg/kg	42800	35300	45200	50800
Lead	mg/kg	9.54	9.78	13.2	15.4
Magnesium	mg/kg	15600	11500	17000	17800
Manganese	mg/kg	693	698	933	894
Nickel	mg/kg	40.9	44.7	46.3	48.1
Potassium	mg/kg	5180	2630	5460	7150
Silver	mg/kg	ND	ND	ND	1.2
Sodium	mg/kg	372	326	232	197
Vanadium	mg/kg	81.8	61.6	67.1	80.1
Zinc	mg/kg	92.9	93.0	107	111
<u>TCL Organics</u>					
Acetone	mg/kg	ND	0.036	ND	0.11
Ethylbenzene	mg/kg	1.1	ND	0.0073	ND
Xylenes (total)	mg/kg	7.7	ND	0.076	0.010
2-Butanone	mg/kg	ND	ND	ND	0.099
Naphthalene	mg/kg	ND	ND	ND	0.002

- a. Target Analyte List (TAL) and Target Compound List (TCL) compounds not listed were not present in these samples above quantitation limits.
- b. "mg/kg" indicates milligrams per kilograms or parts per million (ppm); results reported on dry-weight basis.
- c. Samples collected April 13, 1989 by Rizzo Associates.
- d. "ND" indicates parameter was not present in the sample above quantitation limits.

AR306082

TABLE 2-9
POST-EXCAVATION SOIL SAMPLES - DRUM BURIAL AREA 1, SECTION 1
SUMMARY OF ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)	SAMPLE DESIGNATION (c)							
		TCL	IAS 27.5	IAD 23.4	IBS 18.0	1BD 18.1	1CS 20.1	1CD 19.8	1DS 21.1
TCL Volatiles									
Acetone	ug/kg	28	39	ND (d)	12	ND	75	ND	27000
2-Butanone	ug/kg	ND	ND	ND	ND	ND	12	ND	ND
4-Methyl-2-Pentanone	ug/kg	ND	ND	ND	ND	ND	12	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	2200	11000	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	15000	46000	200000
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND	100000	300000	1800000
Methylene Chloride	ug/kg	23	29	18	9.8	19	25	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	140	ND	ND
Trans-1,2-Dichloroethene	ug/kg	6.3	7.8	ND	ND	ND	27	ND	ND
Trichloroethene	ug/kg	28	ND	ND	ND	ND	940	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND	15000	ND	ND

a. Volatile organic parameters in Target Compound List (TCL) not listed were not present in these samples above quantitation limits. Samples were analyzed for volatile organic compounds only.

b. "ug/kg" indicates micrograms per kilogram or parts per billion (ppb); results reported on dry-weight basis.

c. Samples collected April 13, 1989 by Rizzo Associates. For grab samples, the first two characters in sample name refer to sampling station shown on Figure 2-2. Third character is "S" for shallow sample or "D" for deep sample.

d. "ND" indicates parameter was not present in the sample above quantitation limits. Quantitation limits for Samples 1DS and 1DD elevated by a factor of 1,000 and for Sample 1-COMP by a factor of 100 over CLP CRQLs.

AR306083

TABLE 2-10
POST-EXCAVATION SOIL SAMPLES - DRUM BURIAL AREA 1, SECTION 2
SUMMARY OF ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)	SAMPLE DESIGNATION (c)					
		<u>2AS</u>	<u>2AD</u>	<u>2BS</u>	<u>2CS</u>	<u>2CD</u>	<u>2DS</u>
Moisture	%	16.0	18.5	16.3	16.0	23.9	26.9
TCL Volatiles							
Acetone	ug/kg	ND (d)	25	48	48	26	ND
2-Butanone	ug/kg	ND	ND	24	12	ND	24
4-Methyl-2-Pentanone	ug/kg	ND	ND	24	24	ND	48
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/kg	8.3	15	ND	ND	17	34
1,1,2-Trichloroethane	ug/kg	ND	ND	1.6	14	ND	ND
Trichloroethene	ug/kg	ND	ND	20	23	ND	ND

- a. Volatile organic parameters in Target Compound List (TCL) not listed were not present in these samples above quantitation limits. Samples were analyzed for volatile organic compounds only.
- b. "ug/kg" indicates micrograms per kilograms or parts per billion (ppb); results reported on dry-weight basis.
- c. Samples collected April 13, 1989 by Rizzo Associates. For grab samples, the first two characters in sample name refer to sampling station shown on Figure 2-2. Third character is "S" for shallow sample or "D" for deep sample.
- d. "ND" indicates parameter was not present in the sample above quantitation limits.

AR306084

TABLE 2-11
POST-EXCAVATION SOIL SAMPLES - DRUM BURIAL AREA 1, SECTION 3
SUMMARY OF ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)	SAMPLE DESIGNATION (c)					
		<u>3AS</u>	<u>3AD</u>	<u>3BS</u>	<u>3BD</u>	<u>3CS</u>	<u>3CD</u>
Moisture	%	18.6	14.5	19.1	16.5	11.6	11.0
TCL Volatiles							
Acetone	ug/kg	74	94	140	ND (d)	ND	ND
2-Butanone	ug/kg	ND	23	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	8.7	1400	2400	1400
Methylene Chloride	ug/kg	17	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethene	ug/kg	17	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	1.2	ND	ND	ND	ND	ND

- a. Volatile organic parameters in Target Compound List (TCL) not listed were not present in these samples above quantitation limits. Samples were only analyzed for volatile organic compounds.
- b. "ug/kg" indicates micrograms per kilograms or parts per billion (ppb); results reported on dry-weight basis.
- c. Samples collected April 13, 1989 by Rizzo Associates. For grab samples, the first two characters in sample name refer to sampling station shown on Figure 2-2. Third character is "S" for shallow sample or "D" for deep sample.
- d. "ND" indicates parameter was not present in the sample above quantitation limits. Quantitation limits for Sample 3DD elevated by a factor of 5 and for Samples 3DD, 3CS, 3CD, and 3DS by a factor of 100 over CLP CRQLs.

AR306085

TABLE 2-12
POST-EXCAVATION SOIL SAMPLES - DRUM BURIAL AREA 1, SECTION 4
SUMMARY OF ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)	SAMPLE DESIGNATION (c)					
		<u>4AS</u>	<u>4AD</u>	<u>4BS</u>	<u>4BD</u>	<u>4CS</u>	<u>4CD</u>
Moisture	%	17.3	19.9	12.5	14.6	21.9	22.2
TCL Volatiles							
Acetone	ug/kg	24	25	ND (d)	ND	220	490
2-Butanone	ug/kg	ND	ND	ND	ND	780	1300
4-Methyl-2-Pentanone	ug/kg	ND	ND	ND	ND	1.3	ND
Toluene	ug/kg	ND	ND	3200	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	5500	4100	ND	ND
Xylenes (total)	ug/kg	ND	ND	410000	47000	ND	ND
Methylene Chloride	ug/kg	ND	ND	6.2	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/kg	ND	ND	ND	ND	7.3	6.0

a. Volatile organic parameters in Target Compound List (TCL) not listed were not present in the samples above quantitation limits. Samples were only analyzed for volatile organic compounds.

b. "ug/kg" indicates micrograms per kilograms or parts per billion (ppb); results reported on dry-weight basis.

c. Samples collected April 13, 1989 by Rizzo Associates. For grab samples, the first two characters in sample name refer to sampling station shown on Figure 2-2. Third character is "S" for shallow sample or "D" for deep sample.

d. "ND" indicates parameter was not present in the sample above quantitation limits. Quantitation limits for Sample 4CD elevated by a factor of 5 and for Samples 4BS and 4BD by a factor of 100 over CLP CRQLs.

AR306086

TABLE 2-13

POST-EXCAVATION SOIL SAMPLES - DRUM BURIAL AREA 2
SUMMARY OF INORGANIC ANALYTICAL RESULTS

<u>PARAMETER</u> ^(a)	<u>UNITS</u> ^(b)	<u>SAMPLE DESIGNATION</u> ^(c)	
		<u>1-COMP</u>	<u>2-COMP</u>
Moisture	%	18.9	22.5
<u>TCL Inorganics</u>			
Aluminum	mg/kg	30000	39100
Barium	mg/kg	173	297
Beryllium	mg/kg	1.97	2.06
Calcium	mg/kg	2430	4890
Chromium	mg/kg	28.4	40.0
Cobalt	mg/kg	16.0	24.5
Copper	mg/kg	13.6	11.6
Iron	mg/kg	22900	28800
Lead	mg/kg	15.8	1.68
Magnesium	mg/kg	8710	15400
Manganese	mg/kg	533	1040
Nickel	mg/kg	41.9	41.3
Potassium	mg/kg	2610	6230
Sodium	mg/kg	222	555
Vanadium	mg/kg	41.9	58.1
Zinc	mg/kg	97.4	111

- a. Target Analyte List (TAL) compounds not listed were not present in these samples above quantitation limits.
- b. "mg/kg" indicates milligrams per kilogram or parts per million (ppm); results reported on a dry-weight basis.
- c. Samples collected May 23, 1989 by Rizzo Associates.

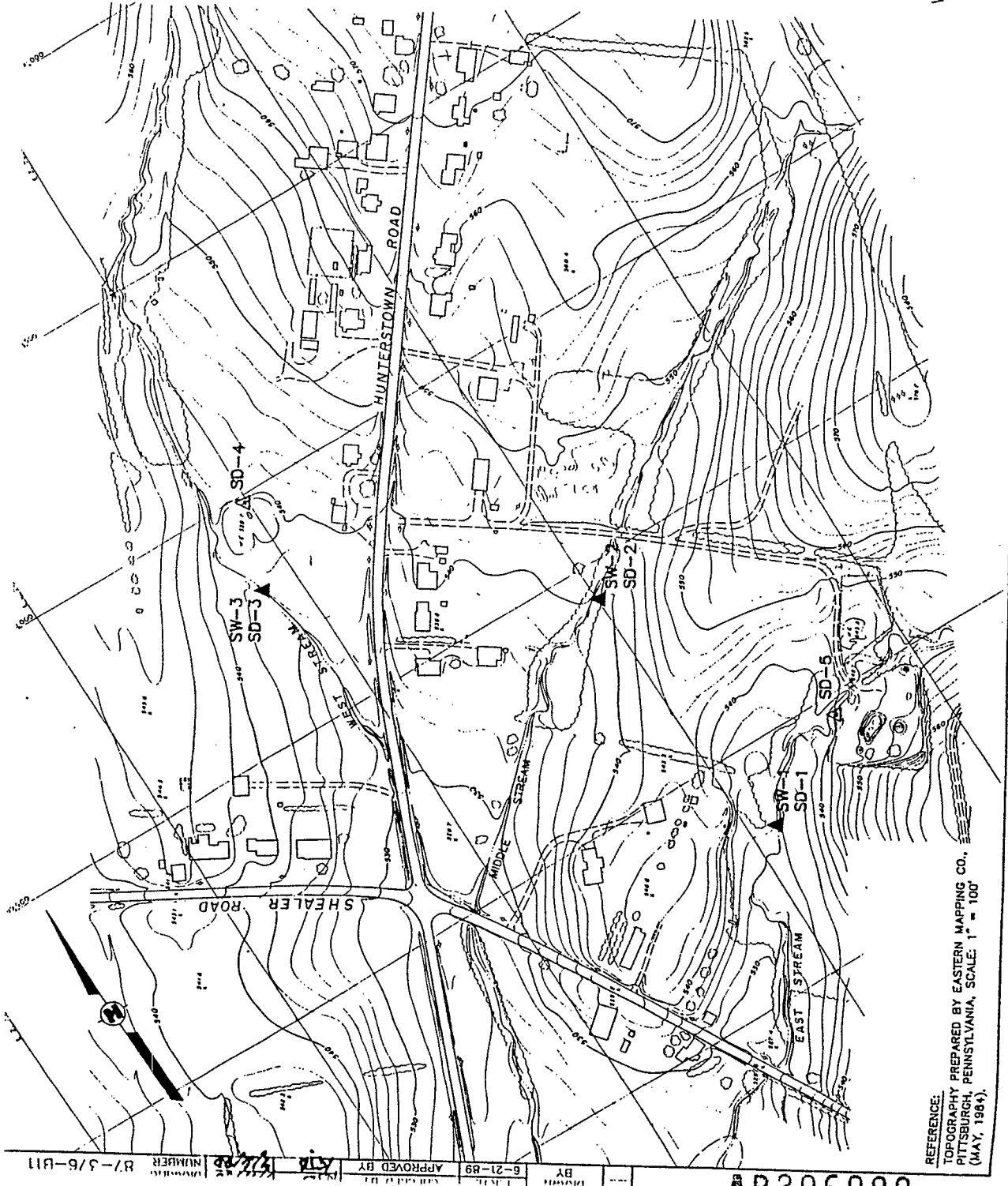
AR306087

TABLE 2-14
POST-EXCAVATION SOIL SAMPLES - DRUM BURIAL AREA 2
SUMMARY OF ANALYTICAL RESULTS

PARAMETER (a)	UNITS (b)	SAMPLE DESIGNATION (c)								
		1AS	1AD	1BS	1BD	1-COMP	2AS	2AD	2BS	2BD
Moisture	%	21.2	19.8	16.6	19.3	18.9	21.1	21.0	25.3	25.6
TCL Volatiles										
Acetone	ug/kg	720	940	12	ND (d)	350	51	51	120	160
2-Butanone	ug/kg	460	500	ND	ND	200	190	320	27	67
4-Methyl-2-Pentanone	ug/kg	ND	62	ND	ND	12	ND	ND	ND	ND
Xylenes	ug/kg	ND	90	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/kg	ND	ND	ND	ND	7.4	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	86	ND	ND	ND	ND	ND	ND	ND

- a. Volatile organic compounds in Target Compound List (TCL) not listed were not present in these samples above quantitation limits. Samples were only analyzed for volatile organic compounds.
- b. "ug/kg" indicates micrograms per liter or parts per billion (ppb).
- c. Samples collected May 23, 1989 by Rizzo Associates. For grab samples, the first two characters in sample name refer to sampling station shown on Figure 2-3. Third character is "S" for shallow sample or "D" for deep sample.
- d. "ND" indicates parameter was not detected above quantitation limits.

AR306088



DCR Paul C. Rizzo Associates, Inc.
consultants

TABLE 2-16
SURFACE WATER SAMPLES
SUMMARY OF ANALYTICAL RESULTS

<u>PARAMETER (a)</u>	<u>UNITS (b)</u>	<u>SAMPLE DESIGNATION (c)</u>			
		<u>SW-1</u>	<u>SW-2</u>	<u>SW-3</u>	<u>SW-3D</u>
<u>TCL Inorganics</u>					
Aluminum	mg/l	1	0.8	1.5	1.4
Calcium	mg/l	25.7	17.7	13.2	13.0
Iron	mg/l	0.52	0.47	0.79	0.75
Lead	mg/l	0.010	ND	ND	ND
Magnesium	mg/l	9.24	7.45	5.52	5.41
Manganese	mg/l	0.02	0.12	0.11	0.10
Potassium	mg/l	5.1	2.6	3.8	3.6
Sodium	mg/l	14.4	7.8	8.1	7.6
Zinc	mg/l	0.04	0.08	ND	ND
<u>TCL Volatiles</u>					
Methylene Chloride	ug/l	ND	ND	7	8
1,1-Dichloroethane	ug/l	ND	ND	11	11
1,1,1-Trichloroethane	ug/l	8	ND	37	38
Trans-1,2-Dichloroethene	ug/l	18	ND	8	8
Trichloroethene	ug/l	24	ND	ND	ND

- a. Target Compound List (TCL) compounds not listed were not present in these samples above quantitation limits.
- b. "mg/l" indicates milligrams per liter or parts per million (ppm); and "ug/l" indicates micrograms per liter or parts per billion (ppb).
- c. Samples collected January 16, 1989 by Rizzo Associates.
- d. "ND" indicates parameter was not present in the sample above quantitation limits.

AR306090

TABLE 2-17
SEDIMENT SAMPLES
SUMMARY OF ANALYTICAL RESULTS

<u>PARAMETER</u> ^(a)	<u>UNITS</u> ^(b)	<u>SAMPLE DESIGNATION</u> ^(c)					
		<u>SD-1</u>	<u>SD-2</u>	<u>SD-3</u>	<u>SD-3D</u>	<u>SD-4</u>	<u>SD-5</u>
Moisture	%	39.2	22.3	22.1	28.9	36.6	34.5
<u>TCL Inorganics</u>							
Aluminum	mg/kg	12900	9100	15800	18600	21300	17300
Arsenic	mg/kg	3	14	6	4	3	6
Barium	mg/kg	100	100	80	60	110	110
Beryllium	mg/kg	1.0	1.3	ND	ND	0.9	1.1
Calcium	mg/kg	2600	2550	2700	2550	1810	2610
Chromium	mg/kg	110	49	31	37	28	50
Cobalt	mg/kg	10	30	9	8	ND	.20
Copper	mg/kg	160	55	12	20	14	52
Iron	mg/kg	13600	53000	24600	25300	22100	43400
Lead	mg/kg	704	96.4	19.6	23.9	23.7	194
Magnesium	mg/kg	2930	3290	4030	4430	2900	5270
Manganese	mg/kg	556	1900	582	323	375	1100
Mercury	mg/kg	0.07	ND	ND	ND	ND	ND
Nickel	mg/kg	12	19	13	14	11	18
Potassium	mg/kg	691	566	1050	900	1100	947
Sodium	mg/kg	ND	140	ND	ND	110	ND
Vanadium	mg/kg	31	60	40	58	46	66
Zinc	mg/kg	219	138	53	48	50	261
Cyanide	mg/kg	0.10	0.22	ND	ND	ND	ND
<u>TCL Volatiles</u>							
Acetone	ug/kg	33	ND	26	42	32	46
Methylene Chloride	ug/kg	13	ND	10	10	ND	18
Trans-1,2-Dichloroethene	ug/kg	10	ND	ND	ND	ND	50
Trichloroethene	ug/kg	28	ND	ND	ND	ND	81
<u>TCL Semivolatiles</u>							
Butyl Benzyl Phthalate	mg/kg	ND	ND	3.30	0.84	ND	ND
Di-n-Octyl Phthalate	mg/kg	ND	ND	2.02	0.52	ND	ND

- a. Target Analyte List (TAL) and Target Compound List (TCL) compounds not listed were not present in these samples above quantitation limits.
- b. "mg/kg" indicates milligrams per kilogram or parts per million (ppm).
- c. Samples collected December 14, 1988 and January 16, 1989 by Rizzo Associates.
- d. "ND" indicates parameter was not detected above quantitation limits.

AR306091

RESIDENTIAL WELL SAMPLING DATA FOR THE
AREA NEAR THE HUNTERSTOWN ROAD SITE

AR306092

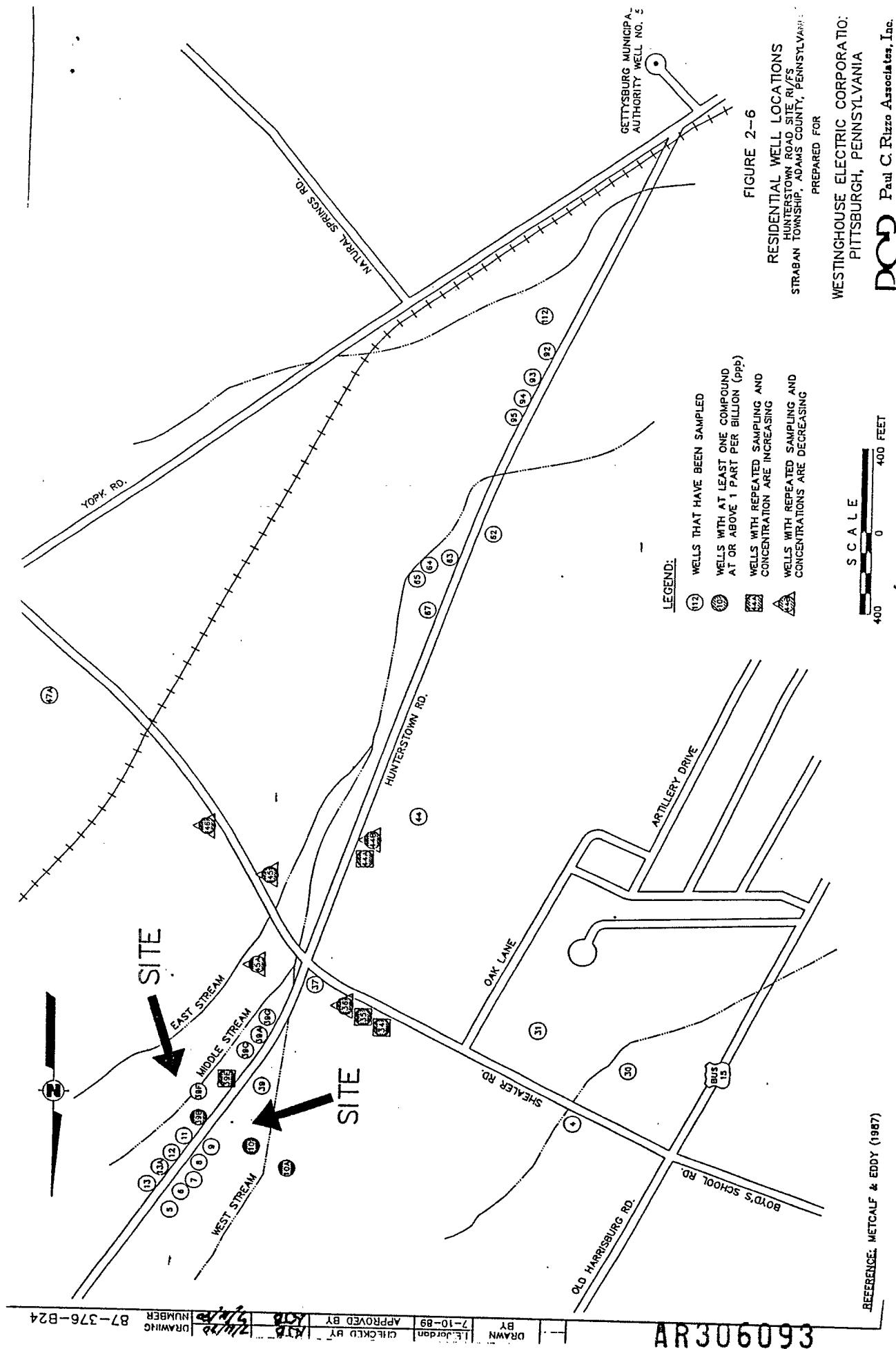


TABLE 2-19

OFF-SITE WELL ANALYTICAL DATA

Name	Lot Number	Date No	Chemical Tests	Contaminant Concentrations (micrograms per liter) *3				Other Compounds	Original Lab Data Report	Source Date
				1,1,1-TCE	1,1,1-TCA	DCE	DCA			
Aitkins, Wilmer L.	13 A	3 27 84	WOA WOA	-500.0	-500.0	95.0	1.5	1.6	1,2-DCE 1.2	See *6
Black, James F., Sr.	7	3 27 84	WOA	101.0	436.0				Trichlorotrifluoroethane 0.8	XXX
Blect, Oerville D.	94	6 20 85	WOA	480.0	390.0	71.0			Chloroform <1.0	PADER
Finzel, Stephen C.	39 E	5 21 84	WOA WOA	<1.0						PADER
"		3 27 84	WOA							PADER
"		12 21 84	WOA							Culligan
"		1 28 85	WOA							MUS
Flynn, Mary		11 25 85	WOA							PADER
Herbaugh, E. Frank	4	8 1 84	WOA							PADER
Heflin, Lee W./Vernon	45	3 14 84	WOA	18.0	12.0	12.0			1,2-DCE 1.4	PADER
"		1 28 85	WOA	19.0	-13.0					MUS
Heflin, William F.	44 B	6 26 84	WOA	5.9	5.1	1.6				PADER
"		12 21 84	WOA	7.4	3.4					Culligan
"		1 28 85	WOA	<7	<5.0					MUS
Hedges Masonry Inc.	67	6 20 85	WOA							PADER
Hoffman, Dale C.	35	4 24 84	WOA	9.0	>120.0	55.0	14.0	<1.0	1,2-DCE 3.4	XXX
"		12 21 84	WOA	11.6						MUS
"		1 28 85	WOA	<7	9.0	300.0	16.0	63.0		
Hoffman, Kathryn M.	36	4 26 84	WOA	<1.0	26.0	3.5				PADER
"		12 21 84	WOA							Culligan
"		1 28 85	WOA	<7	7.0					MUS
Hull, John A.	30	8 1 84	WOA							PADER
Kaufmann, Earl H.	65	5 21 84	WOA	<1.0						PADER
"		2 6 85	WOA							XXX
"		4 24 85	WOA							XXX
"		8 5 85	WOA							XXX
"		11 19 85	WOA							PADER
Kennedy, Vincent	39 B	2 23 84	WOA							PADER
Kessler, Mrs. Hazel I.	64	6 20 85	WOA							MUS
Kettnerman, Barbara	9	3 16 84	WOA							PADER
"		2 6 85	WOA							XXX

AR306094

TABLE 2-19
(Continued)

Name	Lot Number	Date No Day Yr	Chemical Tests	Contaminant Concentrations (micrograms per liter) *3				Other Compounds	Original Lab Data Report	Source file #4
				1,1,1-TCE	1,1-DCA	PCP	NA			
Klunk, Michael J.	47 A	10 10 84	VOA				NA		PAPER	
Light, Terry R.	63	3 13 84	SCAN				NA		PAPER	
Lott, John K.	49	51	3 27 84	VOA					PAPER	
Martin, Paul W.	8		3 28 84	VOA					PAPER	
McDermitt Concrete Inc.	112		6 20 85	VOA						
McMahon, Thomas J.	12		3 27 84	VOA						
"			12 19 85	VOA						
Moritz, Charles H.	6		3 27 84	VOA						
"			5 21 84	VOA						
Phiel, Richard	10 A	12 16 83	VOA	1.2	1.7	<1.0	<1.0		PAPER	
Platt, Merlin L.	13		3 27 84	VOA					PAPER	
Rice, Fred H.	93		6 20 85	VOA						
Sendars, Francis	46		3 14 84	VOA	>150.0	1.7	2.4	<1.0		
"			12 21 84	VOA	105.3	Trace				
Sheeler, Frederick W.	10		3 28 84	VOA	<1.0	1.1		<1.0	PAPER	
"			8 1 84	VOA					PAPER	
Sheeler, Gerald F.	11		3 27 84	VOA					PAPER	
"			8 1 84	VOA					PAPER	
Sheeler, James H.	*12	39 F								
Sheeler, Mrs. S. Catherine	36		6 26 84	VOA	1.5	61.0	9.2	<1.0	PAPER	
"			1 28 85	VOA	<7	85.0	20.0		MUS	
Shriver, Frank	39 C		3 14 84	VOA					PAPER	
"			1 28 85	VOA					MUS	
Shupe, Ray H.	62		6 20 85	VOA						
Smith, Ronald H.	37		3 28 84	VOA	6.4	1.4	<1.0	1.0	PAPER	
"			5 21 84	VOA	6.5	1.4	<1.0	1.5	PAPER	
"			1 28 85	VOA	1.4	-1.0	-4.0	1.2	Culligan	
"			1 28 85	VOA	<7	-1.0	-4.0		MUS	

AR306095

TABLE 2-19
(Continued)

Name	Lot Number	Date No Day Yr	Chemical Tests	Contaminant Concentrations (micrograms per liter) *3				Original Lab Data Report	Data Source file #4
				1,1,1-TCE	1,1,1-ICA	DCE	PCE		
Sparks, Gary	*13	39 E	VOA					PADEP	
Toughinbaugh, George W.	*16	31	8 1 84	VOA				MJS	
Topper, Robert N.	92	6 20 85	VOA					PADEP	
Treaster, Melvin E.	5	3 27 84	VOA					PADEP	
Vaughn, William	39 G	12 14 83	VOA	<1.0	<1.0	<1.0	1.3	PADEP	
Waddell, Donald C.	44 A	4 24 84	VOA	24.0		4.7	<1.0	PADEP	
"		8 14 84	VOA					PADEP	
Waddell, Donald N.	45 A	2 23 84	VOA	66.0	82.0	26.0		PADEP	
"		1 28 85	VOA	52.0	36.0	9.0		MJS	
Waddell, Samuel C.	44		VOA					PADEP	
Wagner, Rufus J.	95	6 20 85	VOA					MJS	
Weaver, Dennis M.	39 A	3 14 84	VOA					PADEP	
"		2 6 85	VOA					PADEP	
"		4 24 85	VOA					PADEP	
"		8 5 85	VOA					PADEP	
"		11 19 85	VOA					PADEP	

AR306096

TABLE 2-19
(Continued)

- footnotes:
- 1) Lot numbers refer to tax map numbers assigned to residents at each site. In some cases these have been changed so that no duplication of numbers occurs within a site.
 - 2) The chemical tests listed are defined as follows:
 - WA: Full range of volatile organic compounds with detection limits of approximately 0.5-1.0 ug/l.
 - SCAM: "ICE scan" which analyzes for ICE, 1,1-TCA and PCE only; detection limits same as above.
 - Note: a blank space indicates that the compound in question was tested for but found to be at or below the detection limit. "na" means that the compound was not tested for.
 - 3) The contaminants listed are defined as follows:
 - ICE: Trichloroethylene
 - 1,1,1-TCA: 1,1,1-Trichloroethane
 - 1,1-DCE: 1,1-Dichloroethylene
 - 1,1-DCA: 1,1-Dichloroethane
 - PCE: Perchloroethylene or tetrachloroethylene
 - Note: "ethylene" and "ethene" are the same exact compound with formula C_2H_4 .
 - 4) Explanation of "Data Source File" Headings:
 - Culligan: Sample originally collected by Culligan I.M.I. Enterprises Inc., Bixerville PA.
 - MUS: Sample originally collected by MUS Corporation.
 - PAOEN: Sample originally collected by Pennsylvania Dept. of Environmental Resources.
 - Ramp (Westinghouse): Data from the "Remedial Action Master Plan" report and originally supplied by Westinghouse Corporation.
- 6) The values of 500 parts per billion for ICE and 1,1,1-TCA are estimates.
 - 7) Type of chemical test performed is unknown.
 - 8) Residence is the "white farmhouse apartments" with one well. Tenants are Lee W. Hellin 230 A Shealer Road and Vernon Hellin 230 B Shealer Road. Property is owned by Donald C. Weddell 340 Hunterstown, Gettysburg 334-3587.
 - 9) Residence contained on section of lot 51 north of lot 5 (Melvin E. Tressler) on the west side of Hunterstown Road.
 - 10) McDermitt Concrete Inc. owns two wells. Both were tested and volatile organics were not detected in either.
 - 11) Sometimes referred to as the "Kilgore Residence". Property is owned by Donald C. Weddell 340 Hunterstown, Gettysburg 334-3587.
 - 12) This residence shares a well with Stephen C. Fissel 485 Hunterstown lot 39 E. See that heading for all data.
 - 13) Resident at lot 39 E (485 Hunterstown) up to June 1986. Current resident at this address is Stephen C. Fissel. Please see that name for tabulation of all data from this well.
 - 14) Also the residence of Margaret Laughlinbaugh.
 - 15) Donald C. Weddell is sometimes referred to as "Donald Weddell, Sr.". This residence possibly shares a well with Samuel C. Weddell 316 Hunterstown, lot 44.
 - 16) This residence possibly shares a well with Donald C. Weddell 340 Hunterstown, lot 44 A.
- 5) Previous tenant at this residence was Gary Sparks up until June 1986. This residence also shares a well with James N. Sheeler 495 Hunterstown Road, lot 39 F. All data for G. Sparks and J.N. Sheeler are included here.